

WHITE CROSS INFORMATION

They are numerous enough to notice, yet placed infrequently enough to be startled at seeing them. They stimulate reverence, sorrow, sympathy, curiosity, and caution. They affect us all, to one degree or another. They are the white crosses that mark the sites of fatal traffic crashes along the highways of Montana. For 50 years, these white crosses have reminded passing motorist of the dangers of the road, as well as the lives which have been lost on the highways.

The Montana American Legion White Cross Highway Fatality Marker Program began in 1953. The unique idea of marking fatal traffic crash sites with a white cross was the brain child of Floyd Eaheart, a member of the American Legion Hellgate Post #27, Missoula, Montana; after six lives were lost in the Missoula area over the 1952 Labor Day Holiday. The safety program started out as a county and later a district project for the Missoula American Legion Post. However, the idea was so well-received that it was soon adopted as a statewide program. The Montana Highway Commission (now Department of Transportation) approved the program in January 1953, with the blessing of the then 13th governor of Montana, J. Hugo Aronson (the "Galloping Swede"). E.A. "Gene" King from Livingston was the American Legion Department Commander at that time. Louis Babb was the Assistant Adjutant for the Department of Montana during this period, and was instrumental in getting the program started. He appeared before the Montana Highway Commission and convinced them to adopt the American Legion White Cross Safety Program. With this authorization, most of the 132 Montana American Legion Posts participated in the White Cross Program. Floyd Eaheart, the man who conceived the program, served as the state White Cross Program chairman for the first several years.

The program is intended as a highway safety, not a memorial, program. Still, many families place wreaths or other decorations on the white crosses, which may be considered a memorial to a loved one lost in a crash. Obstruction of the white cross with these decorations defeats the purpose of the safety program. Attaching them below the cross on the metal pole is acceptable. The white crosses serve as a public service message, reminding drivers to "Please Drive Carefully." They are a sobering reminder of a fatal traffic crash in a place where a human being lost his/her life.

Why Focus on Trauma?

- Trauma is the leading cause of death for all Montanans between the ages of 1 and
 - Motor vehicle crashes remain the number one cause of trauma
- Trauma is the fourth leading cause of death for Montanans of all ages following heart disease, cancer, and stroke
- Trauma causes more potential years of life lost than any other cause in Montana



Trauma

Unavoidable Accident or Preventable Disease?

Like heart disease and cancer, trauma has:

- Identifiable causes
- Established methods of treatment
- Defined methods of prevention

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This is probably the crux of the matter.

Often in the past, trauma has been referred to as an "accident" so many have thought there was really nothing you could do about it.

But that thinking is very far from the truth.

The new thinking is that trauma is a disease for these reasons and there is much for us to do. The term "accident" implies that there is nothing you can do to prevent it when in fact, most trauma is very preventable.

Trauma is a Preventable Disease

Studies reveal 90% of trauma deaths are preventable

- In fact, injury is America's most expensive disease process, costing nearly \$180 billion/year
- According to the Centers for Disease Control, reduction of trauma provides the greatest potential for health improvement

Trauma Systems

Effective trauma systems can dramatically improve survival rate by providing the right care to the right patient at the right time



Implementing an effective trauma system can result in a 50 to 80% reduction in preventable deaths

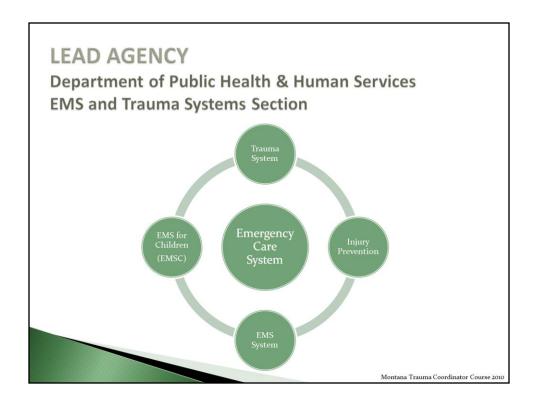
Inclusive Trauma System

- · Trauma is a very time-sensitive disease
- Life-threatening injuries must be identified and treated in order to save the victim's life
- Rural population is spread over large areas, making local access to needed services difficult
- Existing hospitals and some clinics must serve as the safety net for initial stabilization
- Goal is to designate <u>all</u> hospitals as trauma facilities
- Provides for regionalization of trauma care, so that all areas of Montana receive the best trauma care

- •Trauma is a very time-sensitive disease for which the term "the golden hour" was coined; referring to how quickly life-threatening injuries must be identified and treated in order to save the victim's life. Whether the "golden hour" specifically stands up over time and with research, the concept of rapid, timely, appropriate care after injury continues to be an essential premise.
- •The population in non-urban areas is spread over large areas, making local access to needed services difficult
- •In rural areas, the existing hospitals and some clinics must serve as the safety net for initial stabilization of the time-critically injured prior to transfer to definitive care
- •The goal is to designate all hospitals and those rural health clinics that receive injured patients from local ambulances as trauma facilities. Designation level is based on the resources available at the facility.
- •An inclusive trauma care system provides for regionalization of trauma care, so all areas of Montana receive the best possible initial and definitive trauma care as we "connect the dots" up the chain of available care.

Benefits of a Successful Trauma System

- A reduction in trauma deaths
- A reduction in the number and severity of disabilities
- A reduction of the burden on our communities
- A reduction of the burden on the government
- Decreases the impact of the disease on the "second trauma victim";
 the families



The Montana Trauma System has EMS & Trauma Systems as the lead agency that employs a trauma system manager responsible for leading the trauma system. Within the leadership and governance structure of the trauma system, there is an essential role for strong physician leadership. This role is currently being filled by the American College of Surgeons (ACS) Chairman of the Montana Committee on Trauma (COT)

The lead agency (usually a government agency in most states) is the EMS and Trauma Systems Section of the Montana Department of Public Health and Human Services. This agency is responsible for the oversight of the emergency care system, components of which include the Trauma System, EMS System, Injury Prevention, and EMS for Children (EMSC) programs.

The lead agency should have the authority, responsibility, and resources to lead the planning, development, operations, and evaluation of the trauma system throughout the continuum of care.

The lead agency, empowered through legislation, ensures system integrity and provides for program integration with other health care and community-based entities, including public health, EMS, disaster preparedness, emergency management, law enforcement, fire and other community-based organizations.

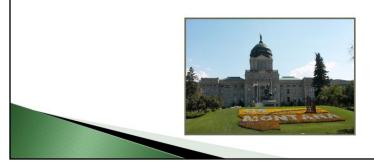
The lead agency works through a variety of groups to accomplish the goals of trauma system planning, implementation, and evaluation. The ability to bring multidisciplinary, multiagency advisory groups together to accomplish trauma system goals is essential in developing and maintaining the trauma system and is part of providing leadership to evolving and mature systems.

Trauma System Leadership

Trauma legislation passed in 1995 Trauma statute link:

http://leg.mt.gov/bills/mca/50/6/50-6-402.htm

The Montana State Trauma Care Committee (STCC) was created by the Montana Legislature to advise the Department of Public Health and Human Services on trauma-related issues



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Montana passed trauma legislation in 1995. This trauma system legislation included the formation of the State Trauma Care Committee to evaluate state-wide trauma issues. This committee advises the Department of Public Health and Humans Services Emergency Medical Services and Trauma Systems Section on trauma system issues.

This true partnership between the public and private sectors (and in particular, the hospitals) provides the leadership structure of the Montana Trauma System.

State Trauma Care Committee

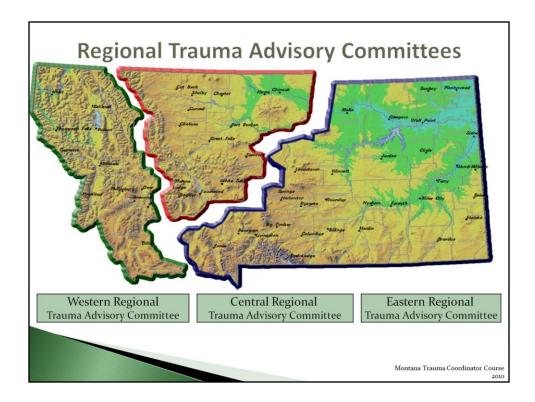
Multidisciplinary group of health care professionals dedicated to the design , implementation and evaluation of the Montana Trauma System

- Chair-American College of Surgeons Committee on Trauma
- American College of Emergency Physicians
- Montana Medical Association
- Montana Hospital Association
- Montana Trauma Coordinators

- Emergency Nurses Association
- Montana Emergency Medical Services Association
- Montana Private Ambulance Operators
- Indian Health Services
- 2 representatives from each Regional Trauma Advisory Committees

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Membership of the State Trauma Care Committee (STCC) is determined by statute and individuals are appointed by the Governor.



The regional approach to healthcare has been utilized in the development of the MT Trauma System. Three regions were identified based on current referral patterns to the Regional Trauma Centers in each region.

The trauma regional advisory committees are referred to as the RTACs. The Western RTAC is based around Missoula with Butte and Kalispell. The Central RTAC is centered around Great Falls. And the Eastern RTAC is centered around the Regional Trauma Centers in Billings.

Each Regional Trauma Advisory Committee meets quarterly to

- (a) identify specific regional trauma needs and to define corrective strategies
- (b) propose trauma care guidelines or protocols, backed by evidence and research showing their efficacy, to the State Trauma Care

Committee

- (c) develop a Regional Trauma Plan
- (d) address system and clinical issues; patient care reviews have become most popular RTAC activity to evaluate care, identify

issues, provide education & collaborate

on strategies for improvement

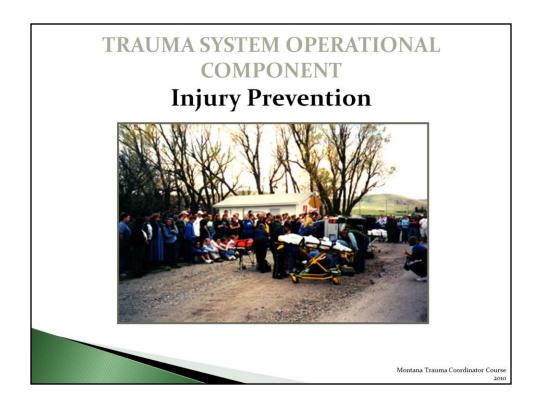




- Injury Prevention
- Prehospital Care
- Acute Care Facilities
- Rehabilitation

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These are the operational components of a trauma system. Optimal care for the trauma patient involves a TEAM approach by health care professionals working together to provide for a coordinated continuum of care. We will next review each component briefly.



We cannot overemphasize importance of injury prevention: Most traumatic injury is preventable.

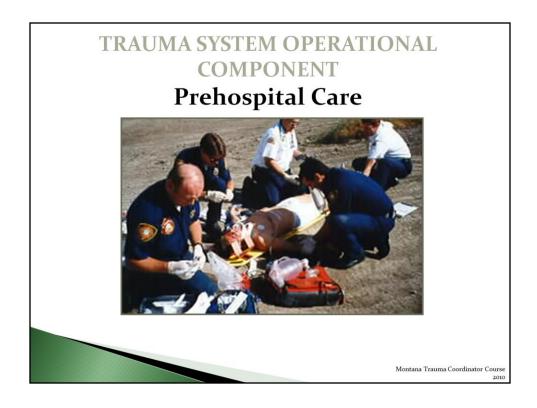
Trauma systems must develop prevention strategies that help control injury as part of an integrated, coordinated, and inclusive trauma system. The lead agency and providers throughout the system should be working with business organizations, community groups, and the public to enact prevention programs and prevention strategies that are based on epidemiologic data gleaned from the system.

Efforts at prevention must be targeted for the intended audience. Collaboration with public service agencies is essential to successful prevention program implementation. Such partnerships can serve to synergize and increase the efficiency of individual efforts. Alliances with multiple agencies within the system, hospitals, and community associations working together is beneficial.

This slide depicts just one of the many prevention activities currently being conducted within the state.

This is the program "**Your Choice**", a car crash demonstration that is provided for the high schools. It is a cooperative effort between local pre-hospital emergency medical providers, police, fire department, the medical facility/hospital, coroner's office, the medical helicopter service for the region, the school, and others.

This picture was taken during the program presented in Big Timber, MT.



If we are unable to prevent injury from occurring, the next operational component of the trauma system is pre-hospital care.

The care of the trauma patient in a trauma system begins at the scene of the incident and this care is provided by the pre-hospital emergency medical care providers. EMS is often the critical link between the injury-producing event and definitive care at a trauma center.

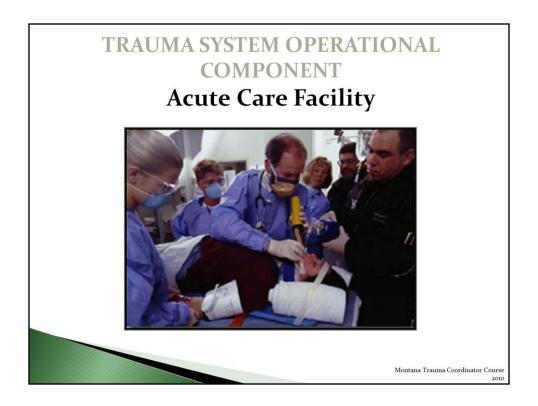
It is a complex system that not only transports patients, but also includes public access, communications, personnel, triage, the provision of care prior to arrival at the hospital, data collection, and quality improvement activities. EMS agencies should have a critical role in ensuring that communication systems are available and have sufficient redundancy so that trauma system stakeholders will be able to assess and act to limit death and disability at the single patient level and at the general population level in the case of multiple or mass casualty incidents (MCIs).

In most areas Montana, this care is delivered by dedicated individuals who <u>volunteer</u> to provide this emergency care. EMS is the only component of the emergency health care and trauma system that depends on a large cadre of volunteers. In order to maintain and improve this invaluable component of the trauma system we must keep this work force and provide them with current trauma care education.

In some smaller facilities, EMS personnel also become part of the emergency resuscitation team, augmenting hospital personnel. The trauma care system program should reach out to these volunteer agencies to help them achieve their vital role in the optimal outcome of care for trauma patients.

A mechanism for case-based review of trauma patients that involves pre-hospital and hospital providers allows bidirectional information sharing and continuing education, ensuring that expectations are met at both ends. Ongoing review of triage and treatment decisions allows for continuing quality improvement of the triage and pre-hospital care protocols. It is critical that trauma system leaders work to ensure that pre-hospital care providers at all levels attain and maintain competence in trauma care.

Ambulance Transport Plans may be developed to assist the ambulance crew on scene and the staff of rural hospitals to move the seriously injured trauma patient through the system to definitive care as quickly as possible.



This component of the trauma system refers to all the medical facilities that provide primary emergency patient care.

The trauma system provides for systematic way of providing emergent life saving care through an organized TEAM approach.

This picture shows a Trauma Team caring for an injured patient in the emergency department. They are providing critical life saving interventions as quickly as possible for the trauma patient in an effort to reduce death and disability.

The emergency department is the first department of the acute care facility where the trauma patient is usually cared for, but this is not the only part of the facility that is the trauma center. Included are all departments and services involved in the care of the injured patient such as Lab, Diagnostic Imaging, surgery, ICU, rehabilitation, etc.

Designation as a trauma facility in the State of Montana is a process for the acute care facilities. The process of trauma center designation is voluntary. The trauma program staff complete an application sent to the EMS and Trauma Systems Section of the Montana Department of Public Health and Human services. The application is reviewed and followed by an on-site survey by an experienced trauma physician and trauma coordinator to evaluate the trauma program processes.

Levels of Trauma Facility Designation

- Regional Trauma Center
 - Capable of providing advanced trauma care for a region, all major surgical services readily available
- Area Trauma Hospital
 - Capable of handling most trauma patients within their service area, surgeon always available
- **Community Trauma Hospital**
 - Able to provide limited emergency and intermittent surgical coverage
- Trauma Receiving Facility
 - Able to provide limited emergency care with no surgical coverage
 Montana Trauma Resource Facility Criteria:

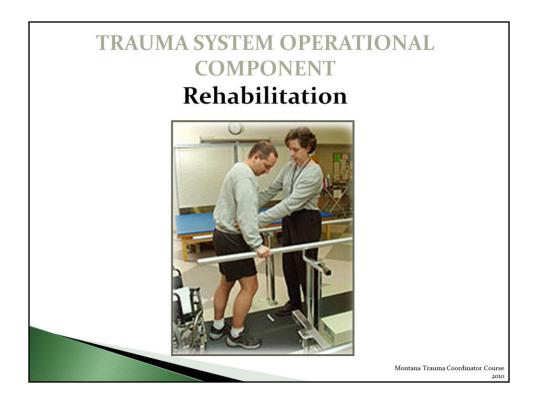
Montana Trauma Facility Resource Criteria link

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Four levels of trauma facility designation are defined in Montana. These four levels represent levels of available resources and capabilities. The four levels are defined through the Montana Facility Resource Criteria, describing "Essential" or "Desirable" characteristics within trauma program components for each level of trauma facility.

Montana Trauma System

- The trauma system includes a network of definitive care facilities that provide a spectrum of care for all injured patients
- The system emphasizes the need for various levels of trauma centers to cooperate in the care of injured patients to effectively utilize precious medical resources



Another important component of the trauma system is rehabilitation or post hospital acute care.

This phase of care starts in the pre-hospital setting and continues through the acute care phase. Initial field interventions greatly affect outcomes for every injured patient. Just getting patients there alive is not enough! The ultimate outcome for each patient may well be dependent on those decisions made in the first hours, especially if pre-agreed upon guidelines are in place;

- -Timely dispatch of appropriate resources
- -Efficient, well-prioritized patient management on-scene and in-hospital
- -Early recognition of injuries with expeditious transfer to a higher level of care when appropriate
- -Timely transfer to appropriate facility by most appropriate means

The goal of trauma care is to maintain/regain a productive member of society and in order to achieve this goal, many trauma patients require significant rehabilitation. The key to making this happen is excellent pre-hospital, nursing, and medical care throughout the continuum of care. All of us working together can make a real difference!

Emergency Preparedness



- An effective disaster response is built upon a robust day-to-day Trauma System
- "Prepare well for one and be well-prepared for many"

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The American College of Surgeons, Committee on Trauma Report: Trauma & EMS systems are designed to be an organized response to injury. As such, they have many elements needed for disaster response, including;

- -Identification and transport of the injured
- -Communications network and designated facilities to receive the injured
- -Specific medical care necessary for the injured
- -"Stretching" the current system works better than creating a new one. Excellent care for one critically injured patient provides the structure for enhanced capabilities when presented with multiple or even "mass" numbers of casualties. "Ramping it up" works well when built on processes teams use routinely.
- -A well-developed trauma system truly is the "back-bone" of an effective Emergency Response/Disaster System.

Trauma System Principles

- An effective trauma care system will be part of, and interrelate with, many other components of the health care system
- Duplication must be avoided and existing resources integrated
- Can adapt trauma system principles, pre-planned team structure with acute care guidelines in preparation for ED responses to many "time-sensitive" patients such as:
 - Hemorrhagic shock not related to injury (GI bleed, etc.)
 - Strokes
 - Acute myocardial infarctions

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The organized team approach in a system of regional care currently used for care of the injured can be expanded to include the various responses required during many emergency care situations. Many time-sensitive patients can benefit from the trauma system organization of patient identification, triage, resources, staff, capabilities and transfer processes already utilized for trauma patients. Adaptation and extension of the existing systems mechanisms rather than creating parallel systems offers further system efficiencies and improved utilization of limited resources for patient benefit.

Effect of a Voluntary Trauma System on Preventable Death & Inappropriate Care in a Rural State

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A second Montana preventable mortality study was conducted in 2000, 8 years after the initial Montana preventable mortality study was completed in 1992. The initial study was completed prior to implementation of the Montana Trauma system. The second study was conducted after initial efforts to implement components of the Montana Trauma System had been made. Inappropriate care was evaluated along with preventable mortality in an effort to see if trauma system development was making a difference.

These are some of the major issues related to trauma and trauma care in a rural state such as Montana.

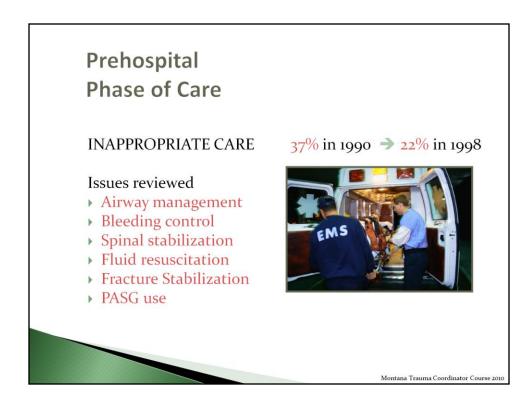
Rural medical centers see a limited number of trauma patients, provided limited opportunities to develop proficiency in care of infrequently seen patients. The key to improved proficiency is education but with limited health care dollars

The key to improved proficiency is education but with limited health care do available, education of the health care providers is often very limited.

Study Findings



- Overall PREVENTABLE DEATH RATE (PDR) was 8% in 1998 compared to 13% in 1990
- In a mandated and funded trauma system in Oregon the PDR dropped to 4.5%



In the Preventable Mortality Studies, all phases of care were evaluated for clinical care issues. While improvements were noted, care components continue to require our attention and efforts for improvement in all phases of patient care.

In the Pre-hospital phase of care, issues related to these listed patient care interventions were identified;

- Management of the patient airway
- Control of bleeding
- Implementation of spinal immobilization
- Fluid resuscitation
- Splinting and stabilization of potential fractures
- Use of Pneumatic Anti-shock Garments

Emergency DepartmentPhase of Care

INAPPROPRIATE CARE Issues reviewed

- Airway management
- Chest injury care
- Fluid resuscitation
- IV placement
- PASG use
- Intra-abdominal evaluation
- Injury recognition
- Vasoactive drug use
- Radiographic imaging

68% in 1990 → 40% in 1998



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In the Emergency Department phase of care, issues related to these listed patient care interventions were identified;

- Management of the patient airway, in particular endotracheal intubation
- Management of identified chest injuries, in particular implementation of chest tubes
- Fluid resuscitation for patients requiring it
- Recognition of the need for and implementation of timely, adequate intravenous access
- Issues related to use of Pneumatic Anti-shock Garments
- Timely, consistent intra-abdominal evaluations
- Recognition of injury and severity
- Issues related to use of vaso-active medications rather than use of trauma resuscitation procedures (ACLS vs ATLS)
- Issues related to effective utilization of Diagnostic Imaging modalities

Post Emergency Department Phase of Care

Inappropriate Care Issues reviewed

- Ventilator Management
- Head Injury Management
- Inappropriate Operation
- Management of Re-bleeding
- Fluid Management

49% in 1990 **> 29**% in 1998



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In the Post-Emergency phase of care, issues related to these listed patient care interventions were identified;

- Management of the patient on ventilator support
- Traumatic Head Injury management
- Inappropriate surgical operations
- Management of patients experiencing re-bleeding
- On-going intravenous fluid management

Conclusions

- Implementation of a voluntary trauma system has positive effects on preventable death rates and inappropriate care
- The degree and nature of inappropriate care remains a concern
- Mandated and funded system components may further influence care positively

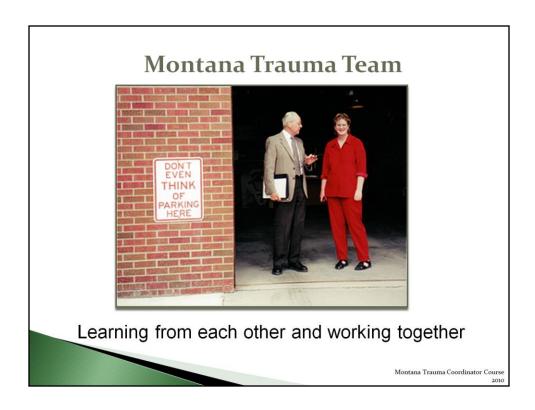
Montana Trauma System Activities

- ▶ Integration of State and Regional Trauma Systems
- Statewide trauma registry
- Active performance improvement processes
- ▶ Education
- Coordination with disaster preparedness programs
- Designation of health care facilities as Trauma Centers

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Trauma system legislation was passed in 1995 that set up the State Trauma Care Committee and Regional Trauma Advisory Committees.

Education for everyone involved is a critical element of the Montana Trauma System. We all need "refreshers" in how to provide optimal trauma care as timing of critical interventions makes a significant life-saving difference and can decrease related disabilities for the severely injured trauma patient.



This is a picture of the ambulance entrance for the Wheatland Memorial Hospital in Harlowton. The trauma reviewers particularly liked this sign:

"Don't even think of parking here"

The people in the picture are Lori Pritchard, the director of nurses, and one of the trauma surgeon reviewers, Dr. Stuart Reynolds.

Dr. Reynolds, who was a general surgeon in Havre, has been instrumental in the development of the Montana Trauma System and has helped many other states such as Oregon, Wyoming, Washington, and Colorado.

Learning from each other in trauma is a key element of our success. The committed willingness of everyone to share information with each other for the purpose of improving trauma care is very exciting.

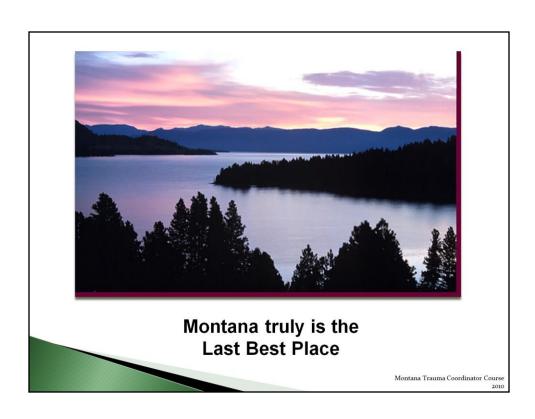
We do not believe in "reinventing the wheel" but instead help each other toward that common goal.



The EMS &Trauma systems website has many resources for you to EASILY access and use. Click on "Programs and Services"; "Trauma System program"; "Program Overview" There, you will find an ever-growing number of tools, forms and resources to assist you and your trauma program (next slide).



This page has links to additional documents, presentations and resources you will find helpful





By learning more about trauma and supporting a comprehensive Trauma System

